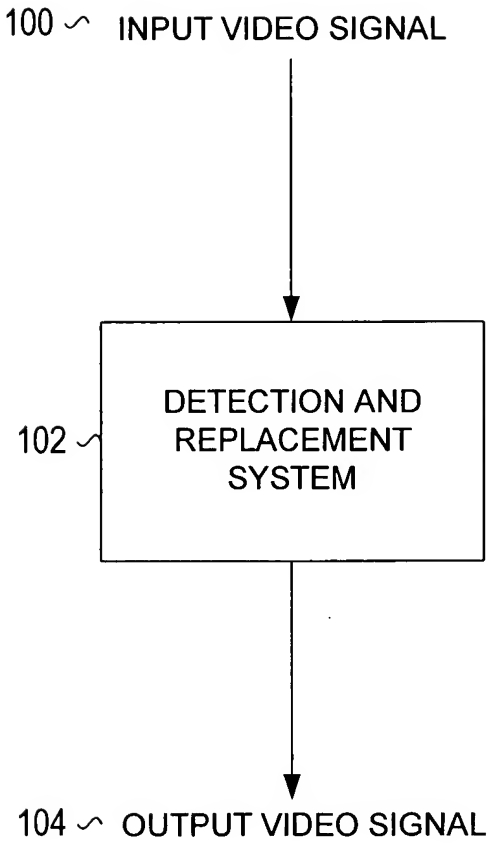
100
INPUT VIDEO SIGNAL
DETECTION AND REPLACEMENT SYSTEM
102
104
OUTPUT VIDEO SIGNAL

FIG. 1

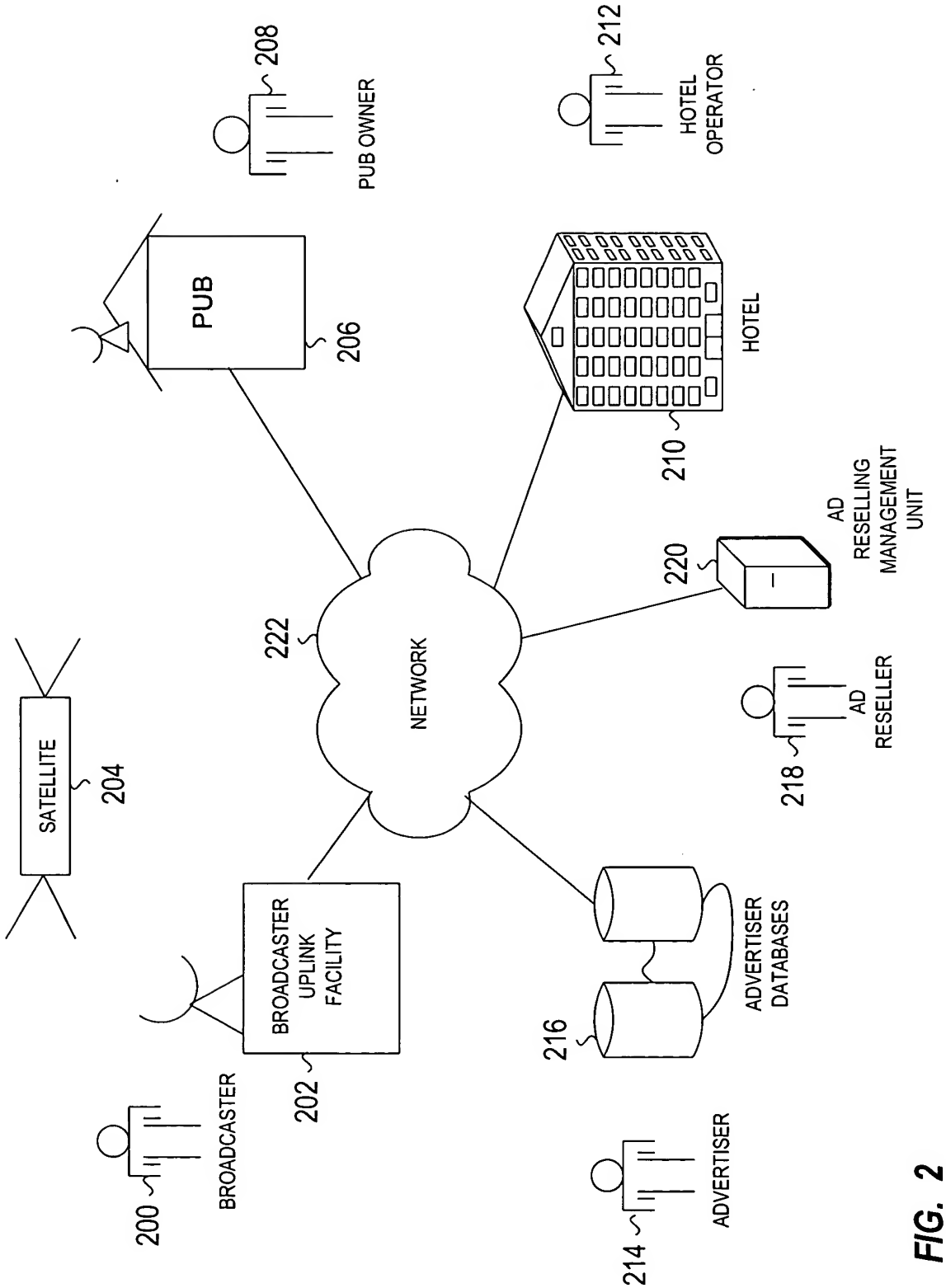
PUB OWNER
208
HOTEL OPERATOR
212
PUB
206
HOTEL
210
AD RESELLING MANAGEMENT UNIT
220
NETWORK
222
SATELLITE
204
AD RESELLER
218
BROADCASTER UPLINK FACILITY
202
ADVERTISER DATABASES
216
BROADCASTER
200
ADVERTISER
214

FIG. 2

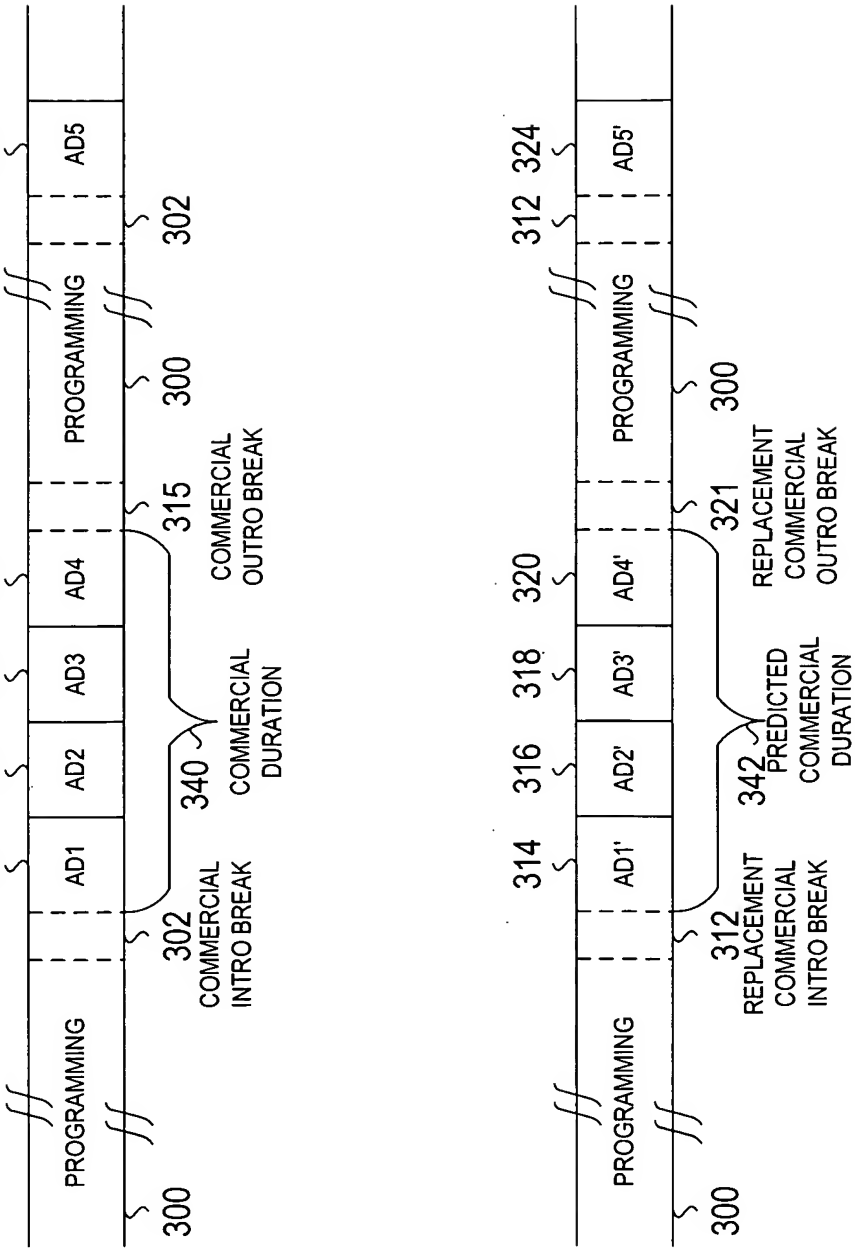
PROGRAMMING
AD1
AD2
AD3
AD4
PROGRAMMING
AD5
304
306
308
310
322
300
302
340
315
300
302
COMMERCIAL INTRO BREAK
COMMERCIAL DURATION
COMMERCIAL OUTRO BREAK
PROGRAMMING
AD1'
AD2'
AD3'
AD4'
PROGRAMMING
AD5'
314
316
318
320
312
324
300
312
342
321
300
REPLACEMENT COMMERCIAL INTRO BREAK
PREDICTED COMMERCIAL DURATION
REPLACEMENT COMMERCIAL OUTRO BREAK

FIG. 3

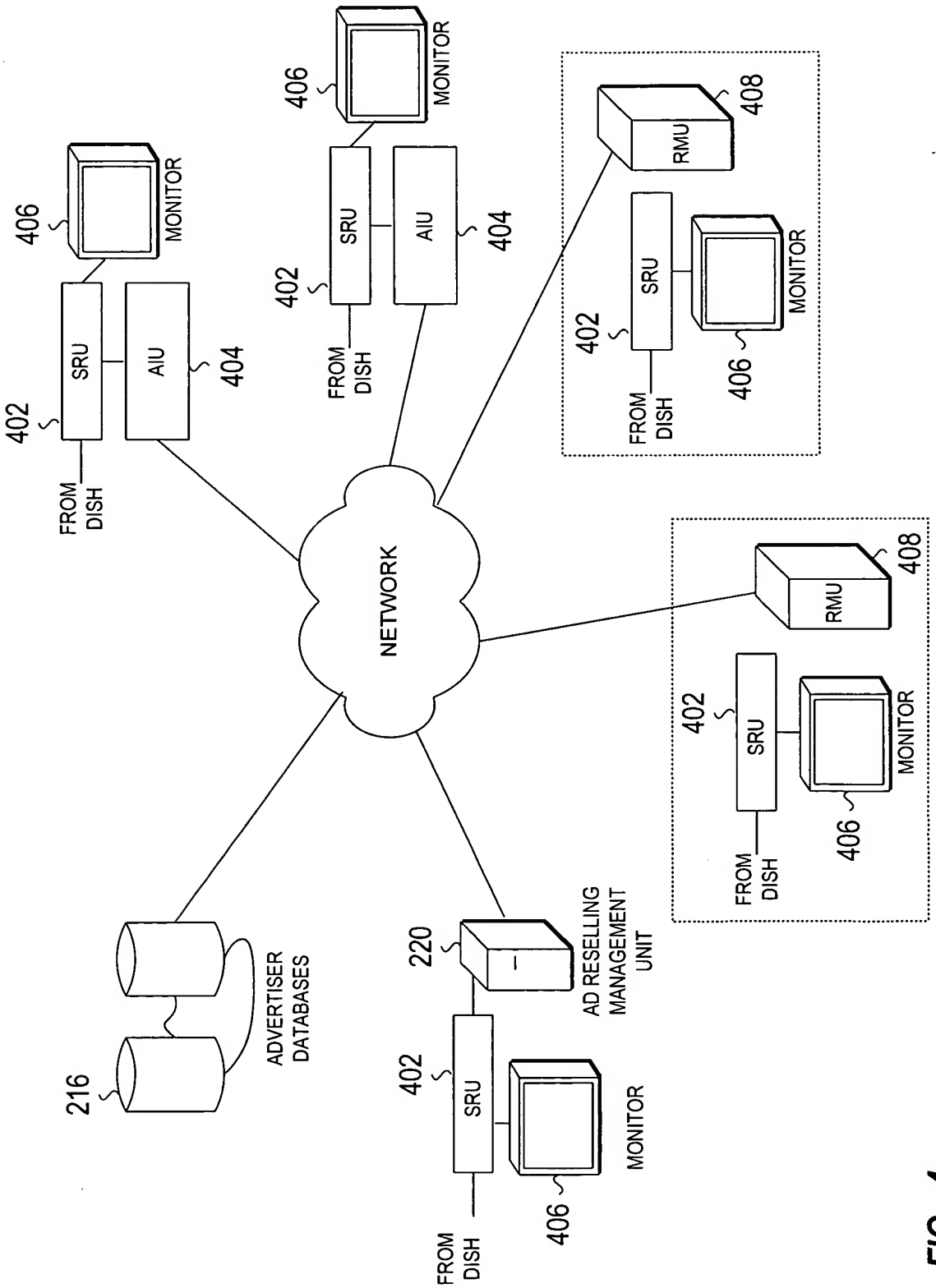
406
MONITOR
402
SRU
AIU
404
FROM DISH
NETWORK
RMU
408
216
ADVERTISER DATABASES
220
AD RESELLING MANAGEMENT UNIT

FIG. 4

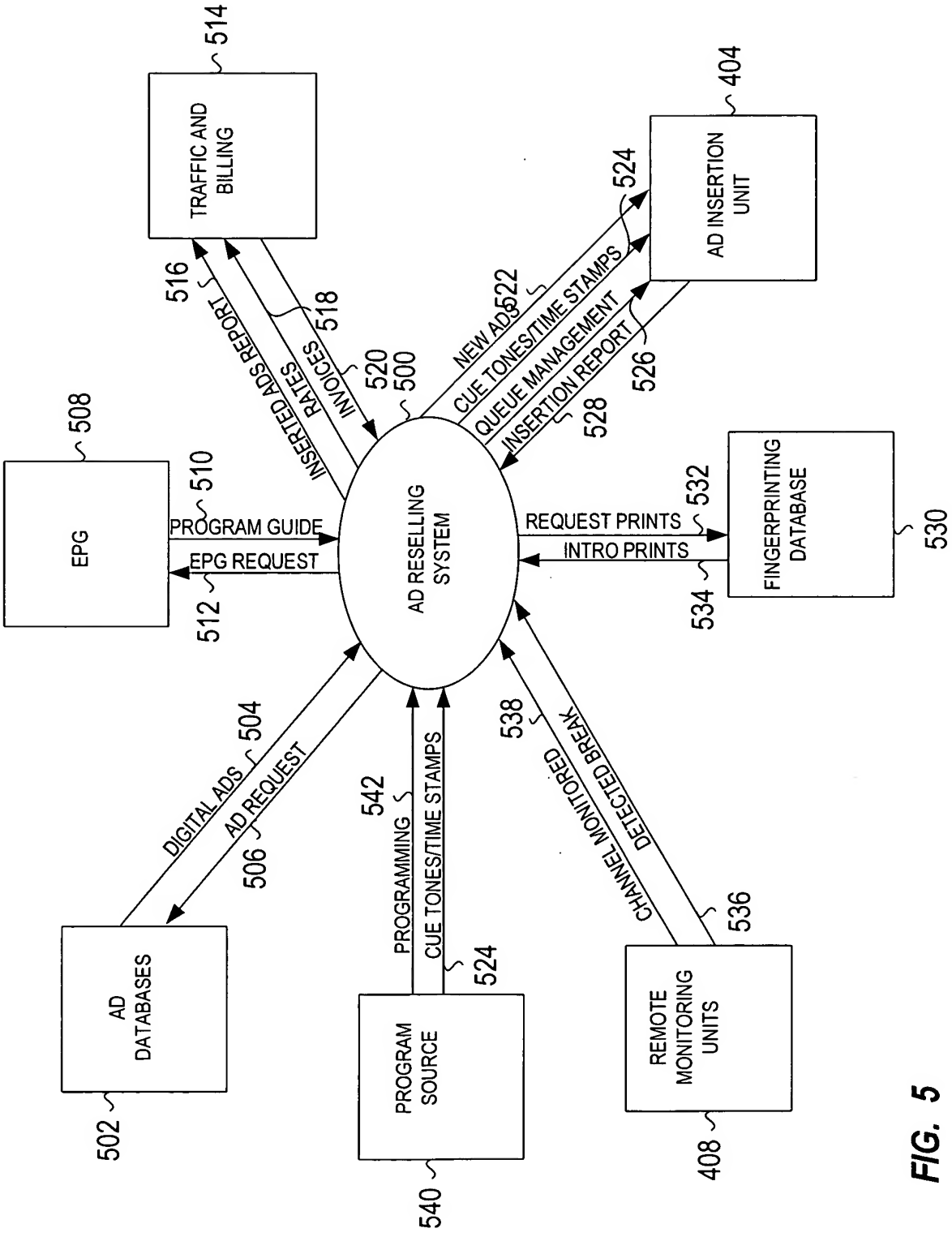
TRAFFIC AND BILLING
514
AD INSERTION UNIT
404
516
INSERTED ADS REPORT
518
INVOICES
520
500
NEW ADS
522
CUE TONES/TIME STAMPS
524
QUEUE MANAGEMENT
526
INSERTION REPORT
528
EPG
508
510
PROGRAM GUIDE
EPG REQUEST
512
AD RESELLING SYSTEM
REQUEST PRINTS
532
INTRO PRINTS
534
FINGERPRINTING DATABASE
530
DIGITAL ADS
504
AD REQUEST
506
AD DATABASES
502
PROGRAMMING
542
CUE TONES/TIME STAMPS
524
PROGRAM SOURCE
540
538
CHANNEL MONITORED
DETECTED BREAK
536
REMOTE MONITORING UNITS
408

FIG. 5

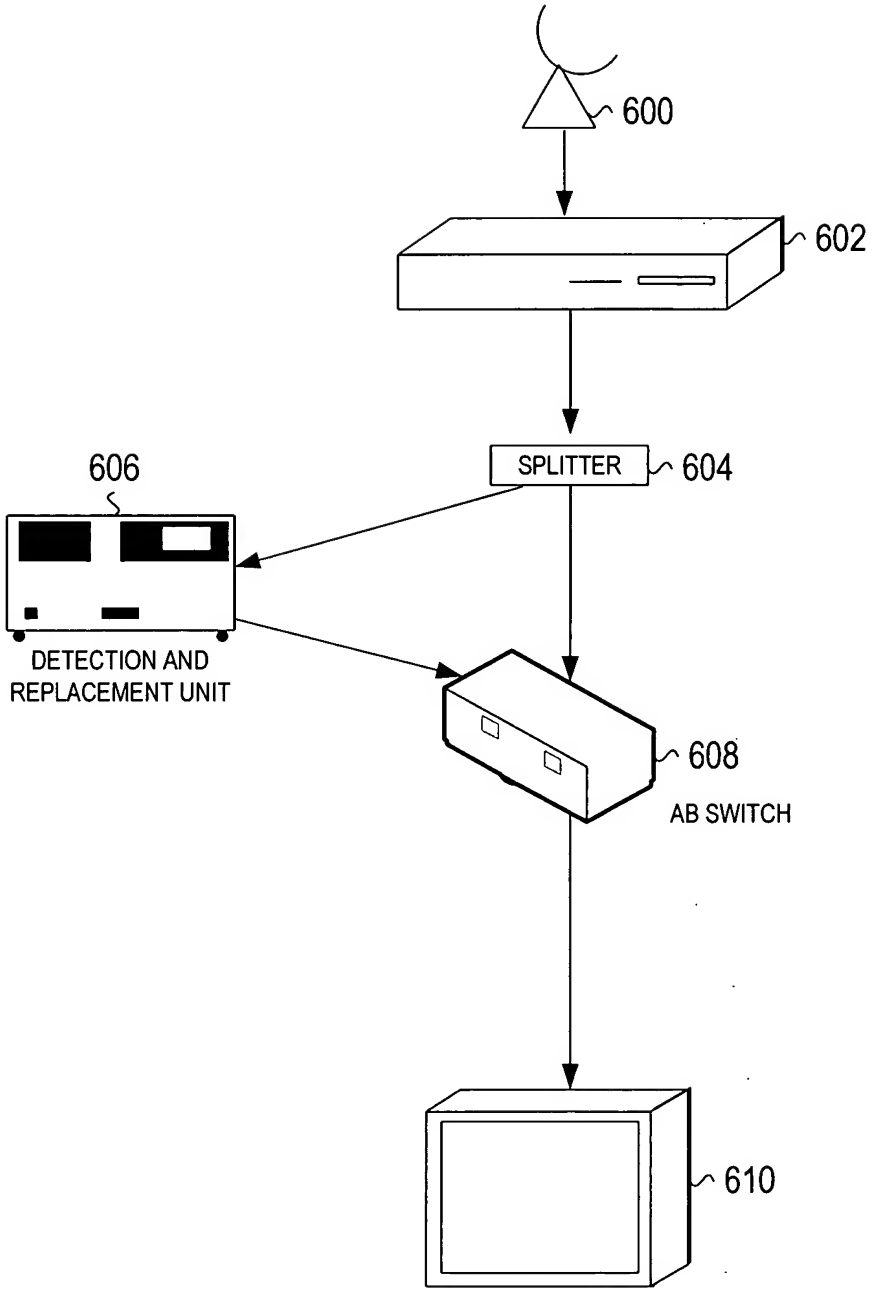
600
602
SPLITTER
604
606
DETECTION AND
REPLACEMENT UNIT
608
AB SWITCH
610

FIG. 6

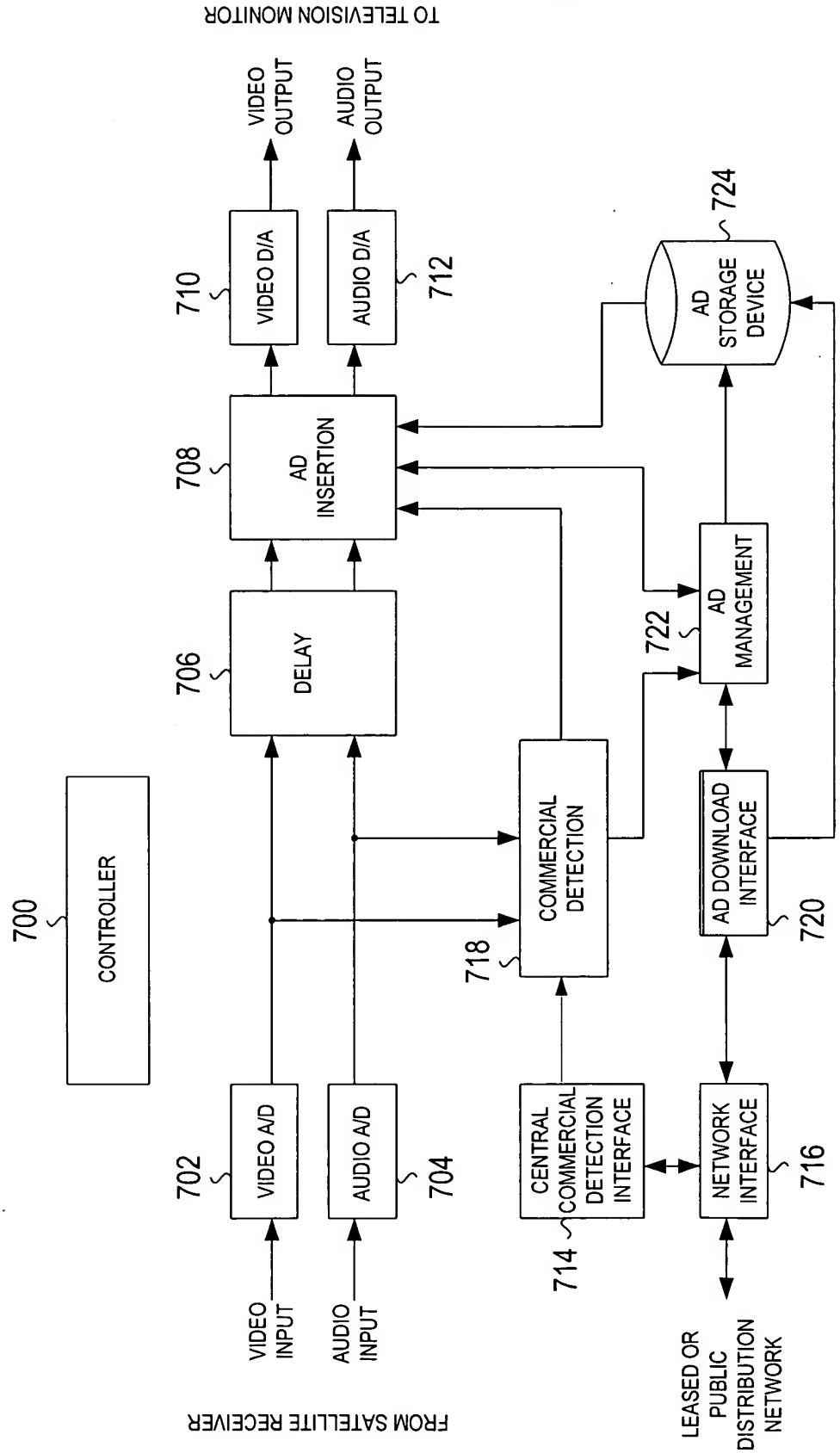
TO TELEVISION MONITOR
VIDEO OUTPUT
AUDIO OUTPUT
VIDEO D/A
AUDIO D/A
710
712
AD STORAGE DEVICE
724
AD INSERTION
708
DELAY
706
AD MANAGEMENT
722
CONTROLLER
700
COMMERCIAL DETECTION
718
AD DOWNLOAD INTERFACE
720
VIDEO A/D
AUDIO A/D
702
704
CENTRAL COMMERCIAL DETECTION INTERFACE
714
NETWORK INTERFACE
716
VIDEO INPUT
AUDIO INPUT
FROM SATELLITE RECEIVER
LEASED OR PUBLIC DISTRIBUTION NETWORK

FIG. 7

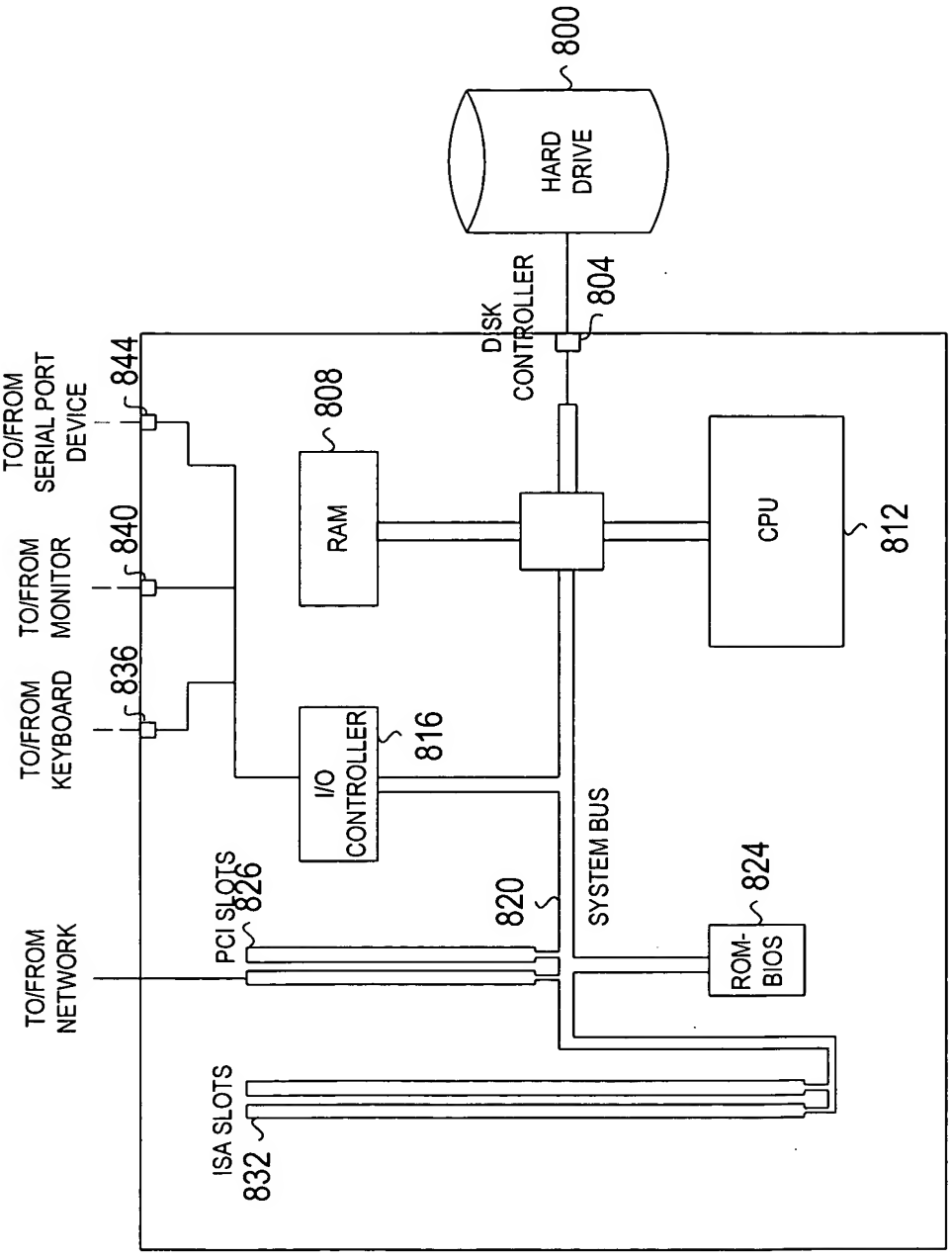
800
HARD DRIVE
DISK CONTROLLER
804
808
RAM
CPU
812
TO/FROM SERIAL PORT DEVICE
844
TO/FROM MONITOR
840
TO/FROM KEYBOARD
836
I/O CONTROLLER
816
SYSTEM BUS
PCI SLOTS
826
820
ROM-BIOS
824
TO/FROM NETWORK
ISA SLOTS
832

FIG. 8

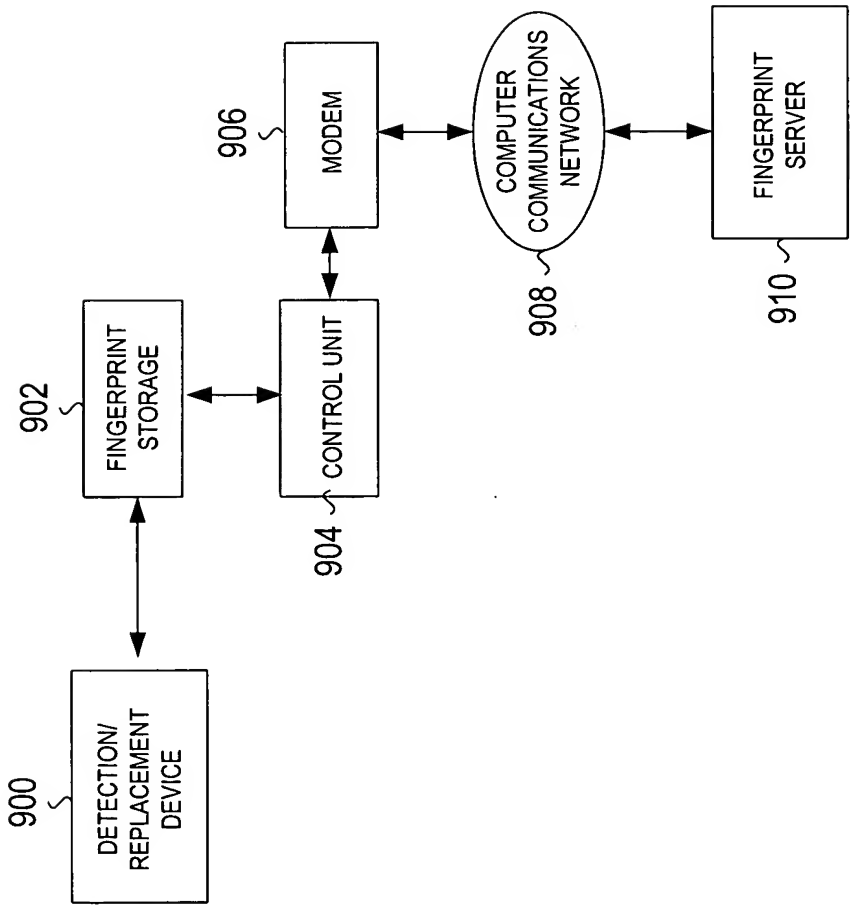
900
DETECTION/ REPLACEMENT DEVICE
902
FINGERPRINT STORAGE
904
CONTROL UNIT
906
MODEM
908
COMPUTER COMMUNICATIONS NETWORK
910
FINGERPRINT SERVER

FIG. 9

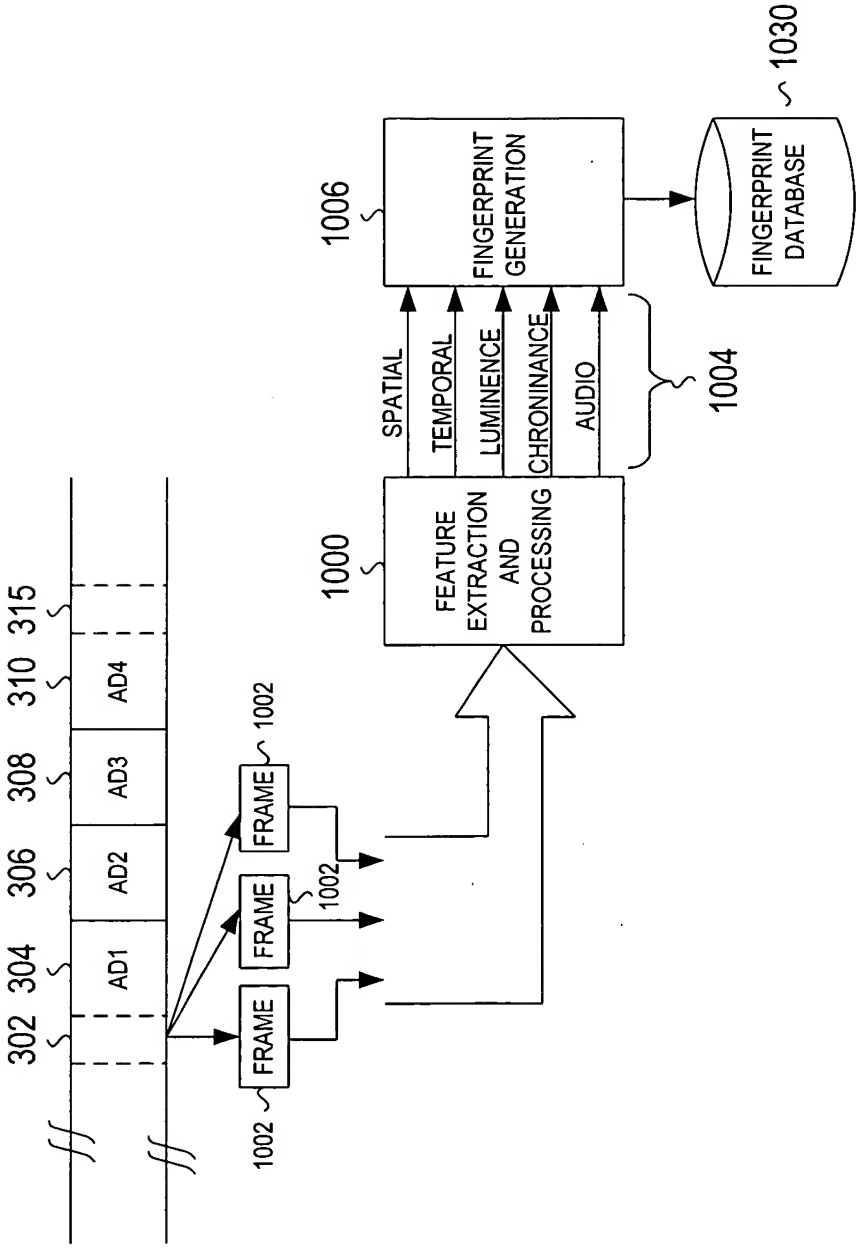
302
304
306
308
310
315
AD1
AD2
AD3
AD4
FRAME
FRAME
FRAME
1002
1002
1002
1000
FEATURE EXTRACTION AND PROCESSING
SPATIAL
TEMPORAL
LUMINENCE
CHRONINANCE
AUDIO
1004
1006
FINGERPRINT GENERATION
1030
FINGERPRINT DATABASE

FIG. 10

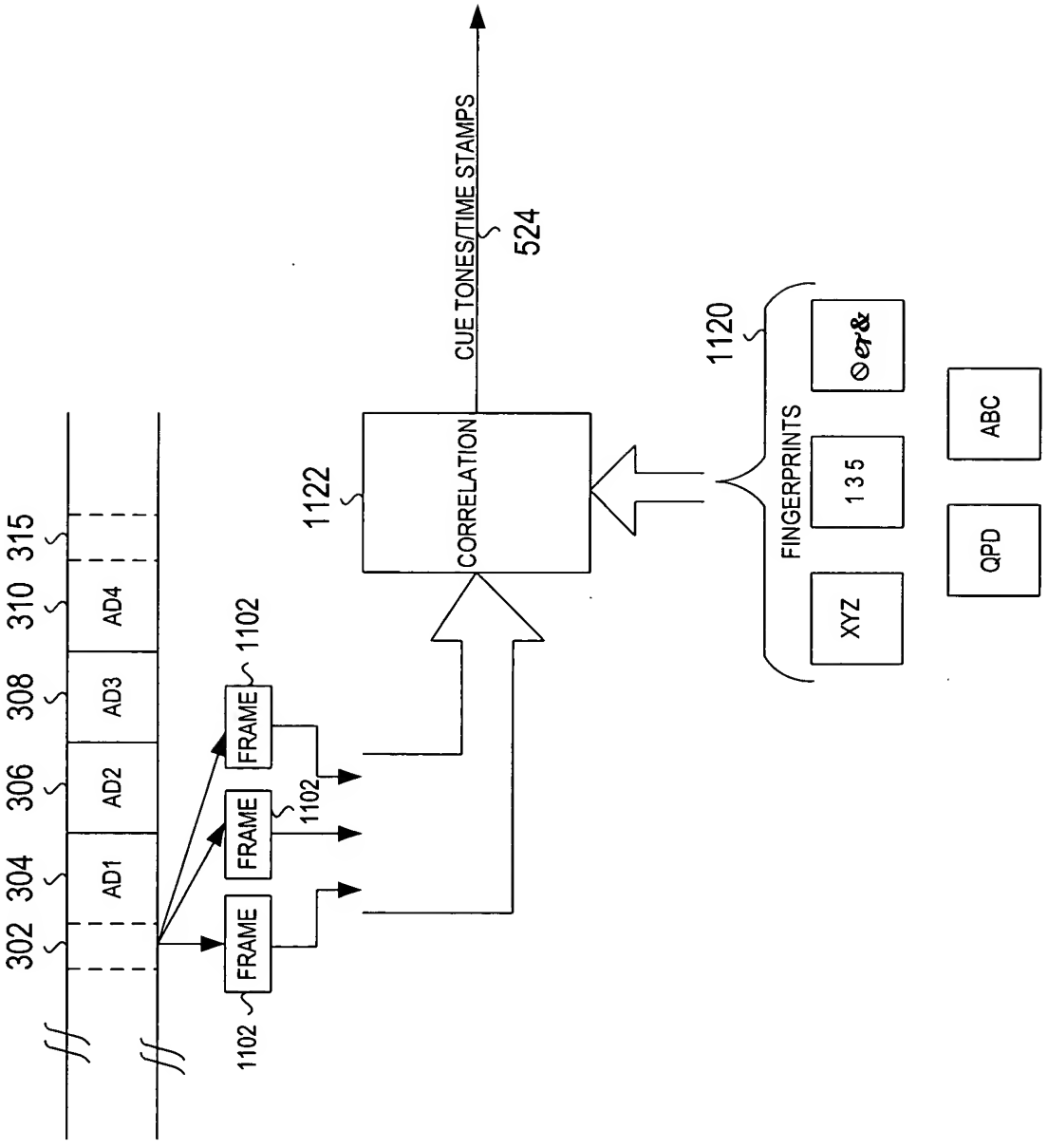
302
304
306
308
310
315
AD1
AD2
AD3
AD4
FRAME
FRAME
FRAME
1102
1102
1102
1122
CORRELATION
CUE TONES/TIME STAMPS
524
1120
FINGERPRINTS
XYZ
1 3 5
QPD
ABC

FIG. 11

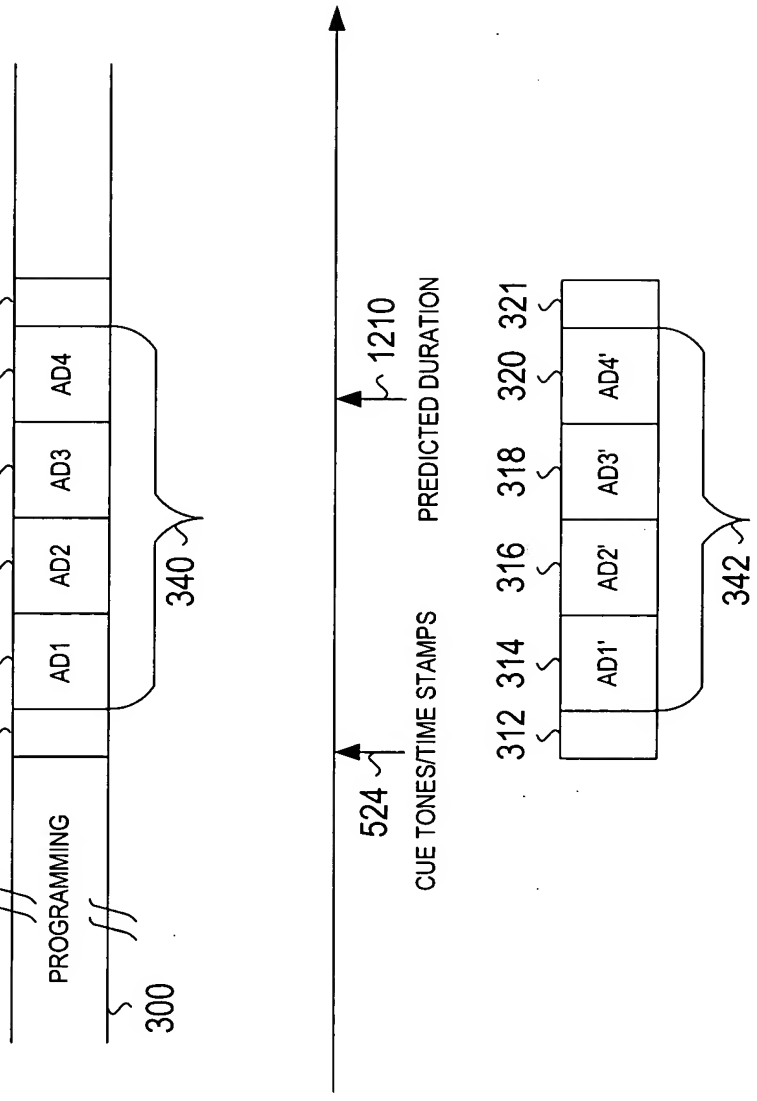
302
304
306
308
310
315
AD1
AD2
AD3
AD4
PROGRAMMING
300
340
524
CUE TONES/TIME STAMPS
1210
PREDICTED DURATION
312
314
316
318
320
321
AD1'
AD2'
AD3'
AD4'
342

FIG. 12

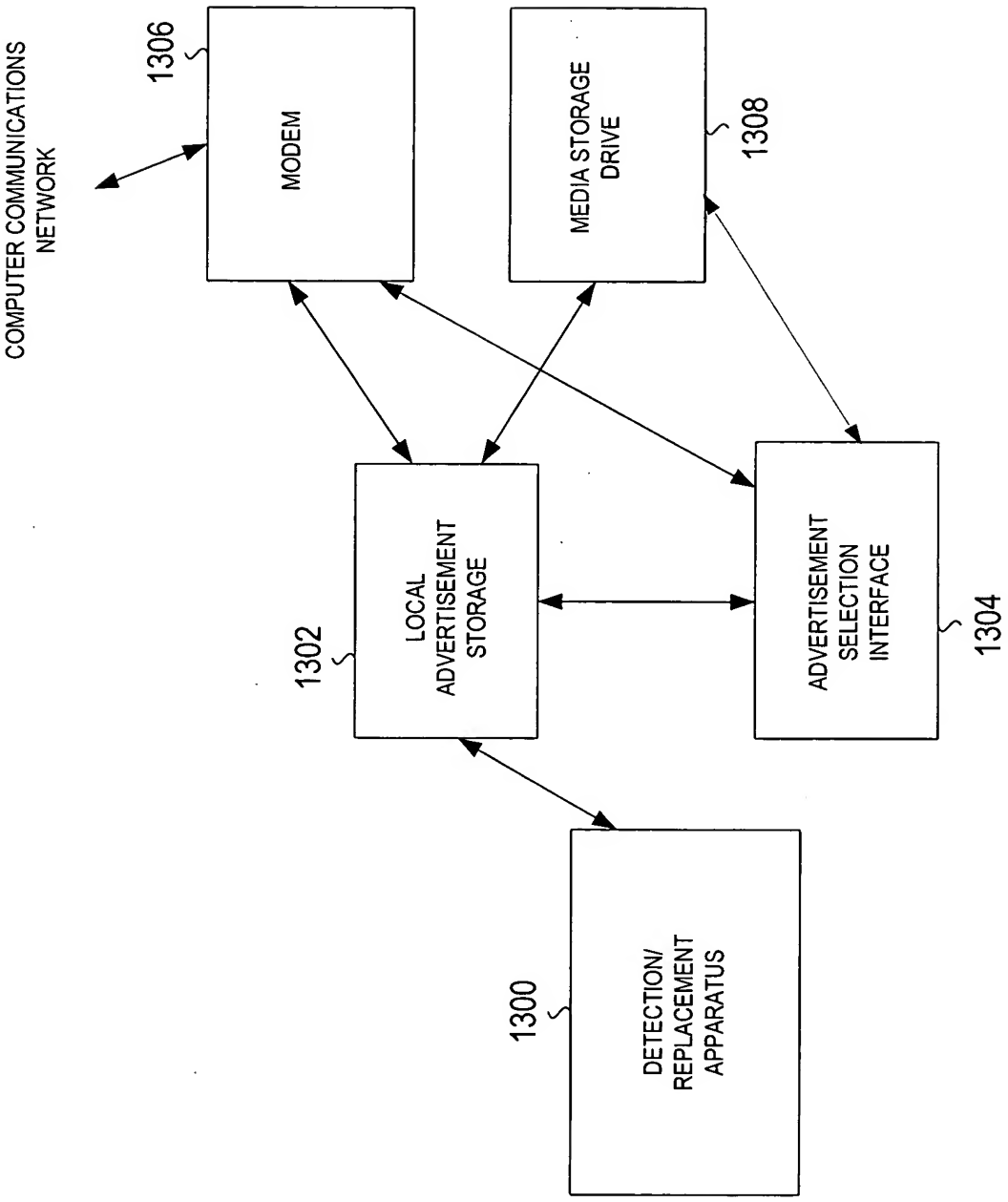
COMPUTER COMMUNICATIONS NETWORK
1306
MODEM
MEDIA STORAGE DRIVE
1308
1302
LOCAL ADVERTISEMENT STORAGE
ADVERTISEMENT SELECTION INTERFACE
1304
1300
DETECTION/ REPLACEMENT APPARATUS

FIG. 13

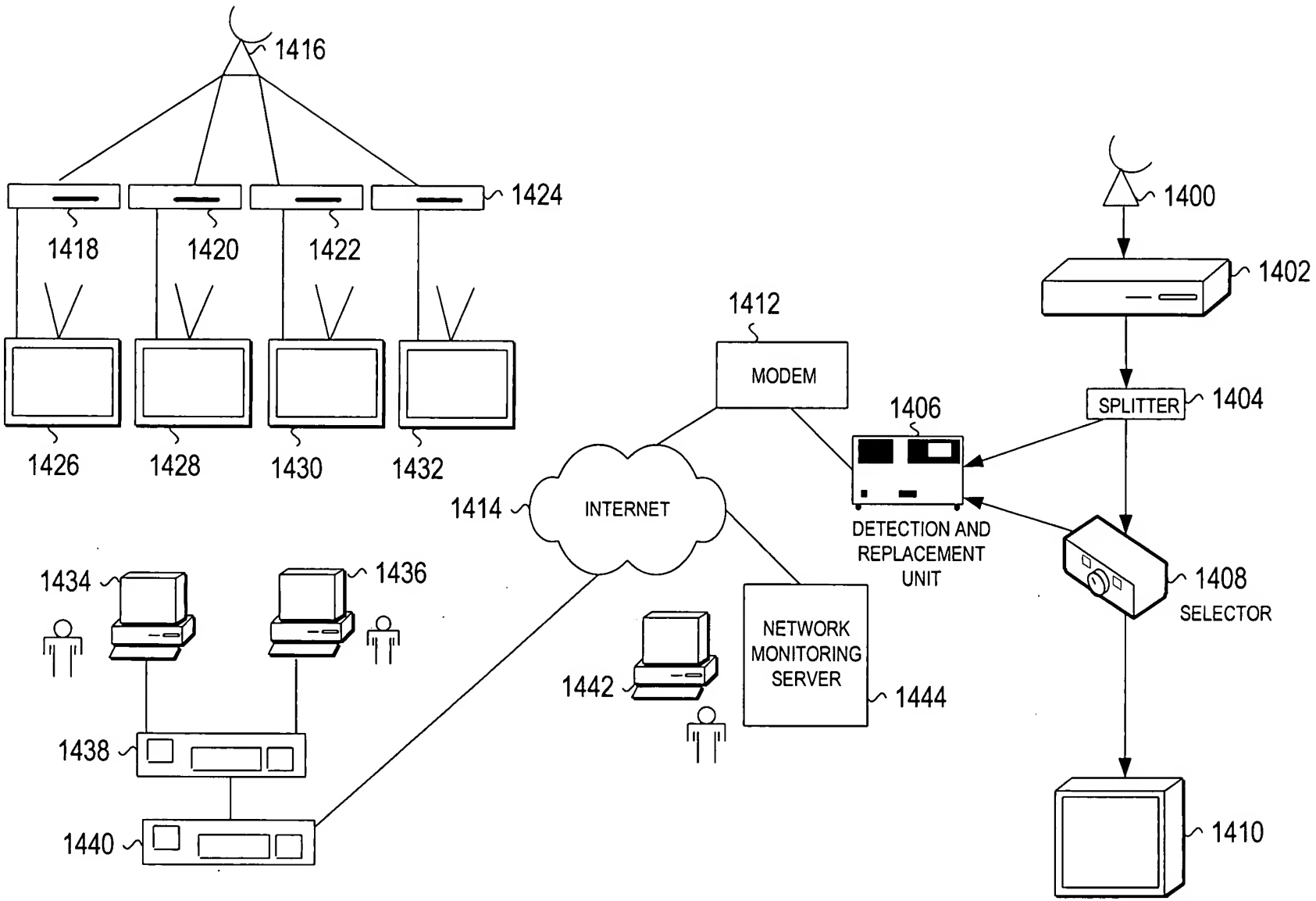
1416
1424
1418
1420
1422
1426
1428
1430
1432
1400
1402
1412
MODEM
SPLITTER
1404
1406
1414
INTERNET
DETECTION AND
REPLACEMENT
UNIT
1408
SELECTOR
1434
1436
1442
NETWORK
MONITORING
SERVER
1444
1438
1440
1410

FIG. 14

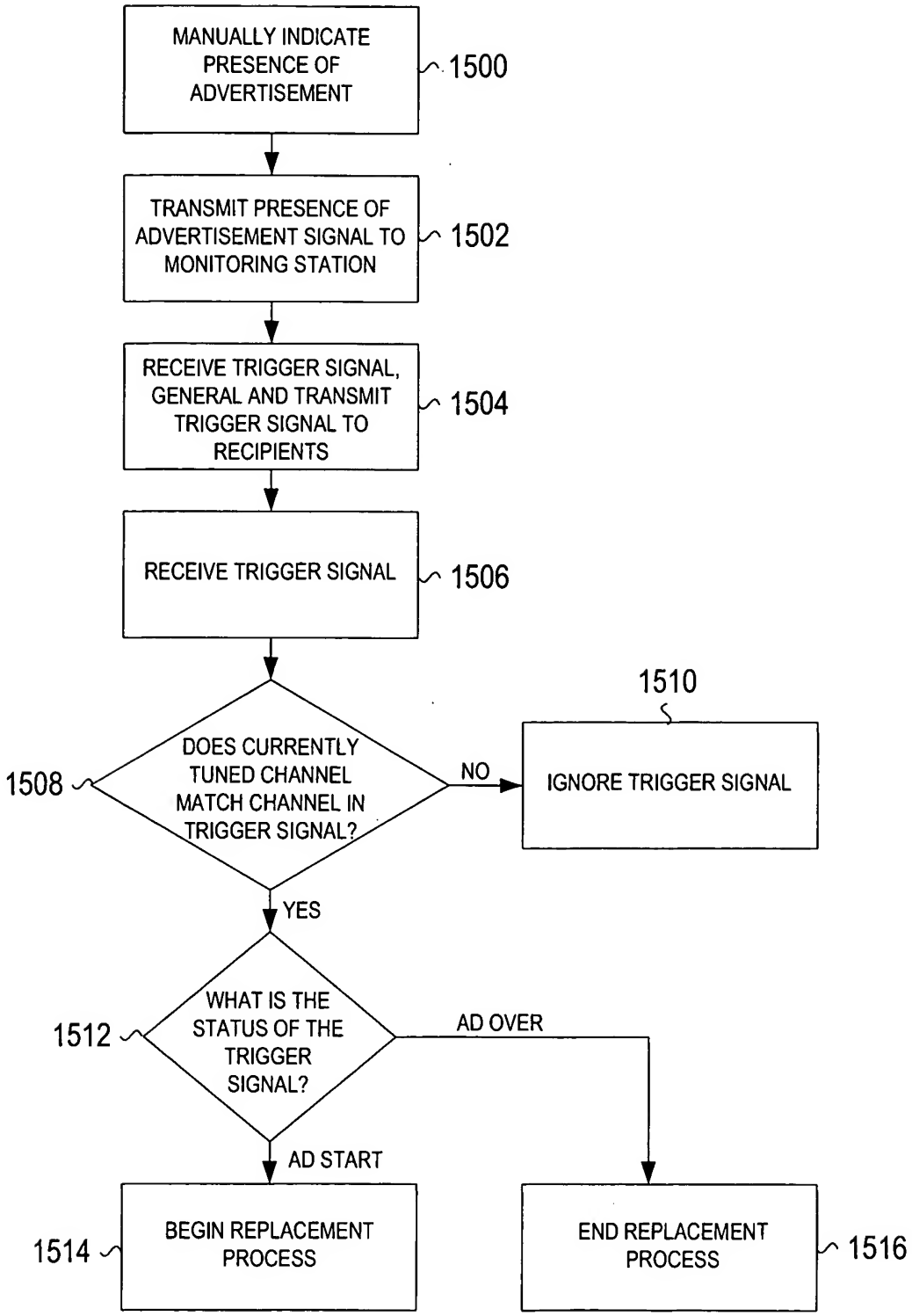
MANUALLY INDICATE PRESENCE OF ADVERTISEMENT
1500
TRANSMIT PRESENCE OF ADVERTISEMENT SIGNAL TO MONITORING STATION
1502
RECEIVE TRIGGER SIGNAL, GENERAL AND TRANSMIT TRIGGER SIGNAL TO RECIPIENTS
1504
RECEIVE TRIGGER SIGNAL
1506
1510
DOES CURRENTLY TUNED CHANNEL MATCH CHANNEL IN TRIGGER SIGNAL?
1508
NO
IGNORE TRIGGER SIGNAL
YES
WHAT IS THE STATUS OF THE TRIGGER SIGNAL?
1512
AD OVER
AD START
BEGIN REPLACEMENT PROCESS
1514
END REPLACEMENT PROCESS
1516

FIG. 15

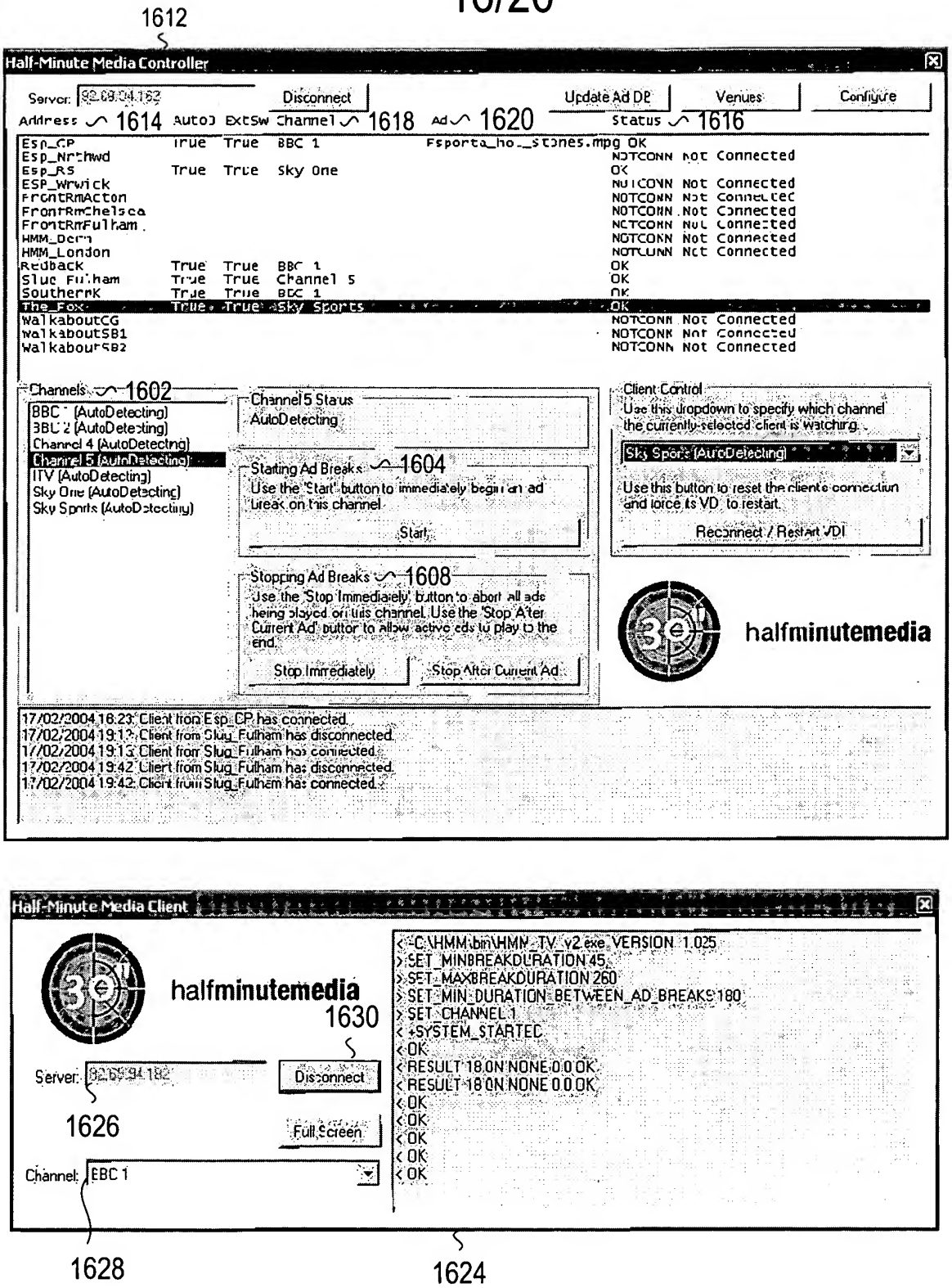
1612
Half-Minute Media Controller
Server:
Disconnect
Update Ad DB
Venues
Configure
Address
1614
AutoD
ExtSw
Channel
1618
Ad
1620
Status
1616
Esp_CP True True BBC 1 Esporta_ho_stones.mpg OK
Esp_Northwd NOTCONN Not Connected
Esp_RS True True Sky One OK
ESP_Wrwick NOTCONN Not Connected
FrontRmActon NOTCONN Not Connected
FrontRmChelsea NOTCONN Not Connected
FrontRmFulham NOTCONN Not Connected
HMM_Derm NOTCONN Not Connected
HMM_London NOTCONN Not Connected
Redback True True BBC 1 OK
Slug_Fulham True True Channel 5 OK
SouthernK True True BBC 1 OK
The_Fox True True Sky Sports OK
WalkaboutCG NOTCONN Not Connected
WalkaboutSB1 NOTCONN Not Connected
WalkaboutSB2 NOTCONN Not Connected
Channels
1602
BBC 1 (AutoDetecting)
BBC 2 (AutoDetecting)
Channel 4 (AutoDetecting)
Channel 5 (AutoDetecting)
ITV (AutoDetecting)
Sky One (AutoDetecting)
Sky Sports (AutoDetecting)
Channel 5 Status
AutoDetecting
Starting Ad Breaks
1604
Use the 'Start' button to immediately begin an ad break on this channel
Start
Stopping Ad Breaks
1608
Use the 'Stop Immediately' button to abort all ads being played on this channel. Use the 'Stop After Current Ad' button to allow active ads to play to the end.
Stop Immediately
Stop After Current Ad
Client Control
Use this dropdown to specify which channel the currently-selected client is watching.
Sky Sports (AutoDetecting)
Use this button to reset the client's connection and force its VD to restart.
Reconnect / Restart VDI
halfminutemedia
17/02/2004 18:23: Client from Esp_CP has connected.
17/02/2004 19:13: Client from Slug_Fulham has disconnected.
17/02/2004 19:13: Client from Slug_Fulham has connected.
17/02/2004 19:42: Client from Slug_Fulham has disconnected.
17/02/2004 19:42: Client from Slug_Fulham has connected.
Half-Minute Media Client
halfminutemedia
1630
Server:
Disconnect
1626
Full Screen
Channel:
EBC 1
1628
<-C:\HMM\bin\HMM_TV_v2.exe VERSION 1.025
>SET_MINBREAKDURATION 45
>SET_MAXBREAKDURATION 260
>SET_MIN_DURATION_BETWEEN_AD_BREAKS 180
>SET_CHANNEL 1
<+SYSTEM_STARTED
<OK
<RESULT 18 ON NONE 0 0 OK
<RESULT 18 ON NONE 0 0 OK
<OK
<OK
<OK
<OK
<OK
1624

FIG. 16

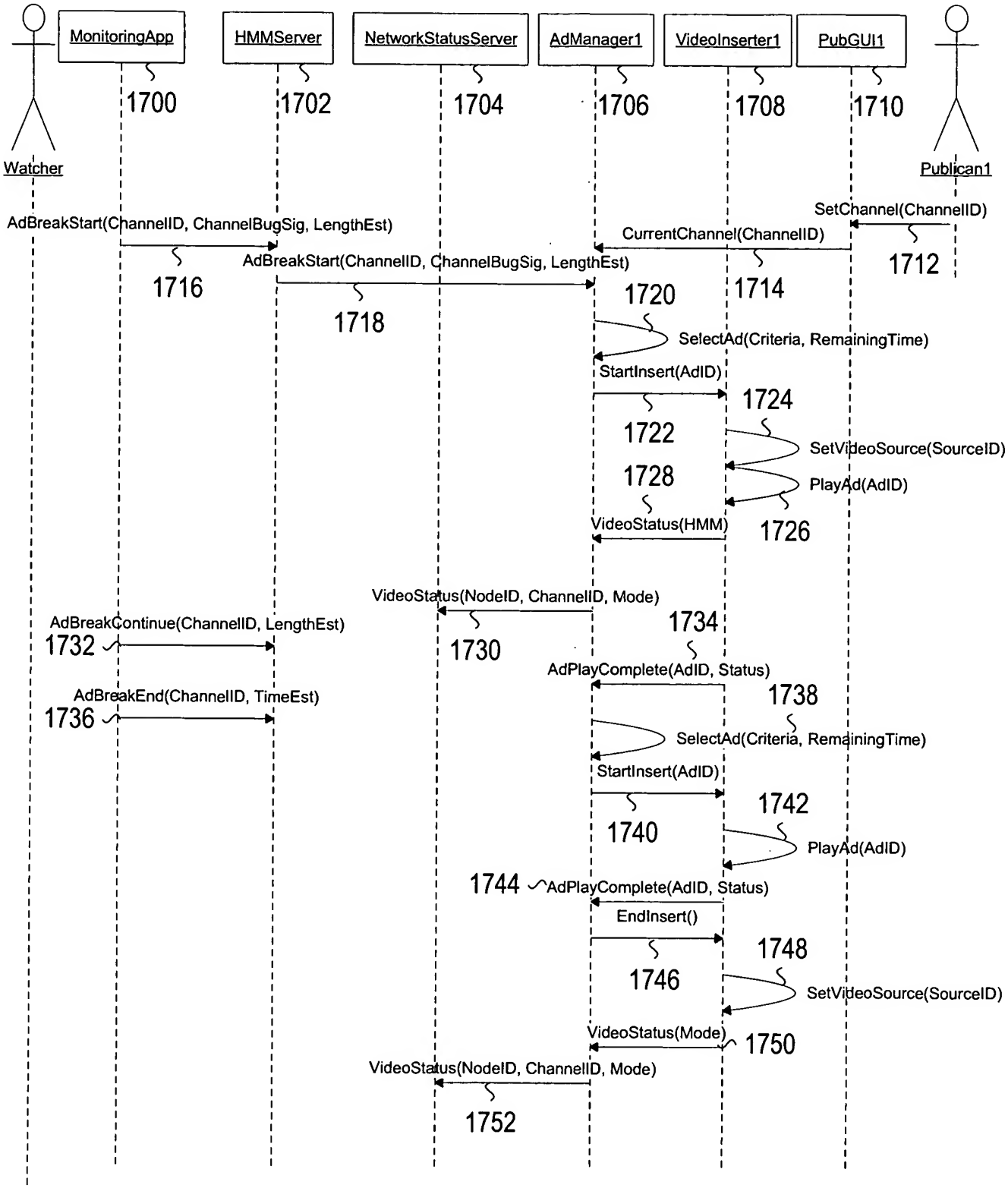
MonitoringApp
HMMServer
NetworkStatusServer
AdManager1
VideoInserter1
PubGUI1
Watcher
Publican1
1700
1702
1704
1706
1708
1710
SetChannel(ChannelID)
1712
AdBreakStart(ChannelID, ChannelBugSig, LengthEst)
1716
CurrentChannel(ChannelID)
1714
AdBreakStart(ChannelID, ChannelBugSig, LengthEst)
1718
1720
SelectAd(Criteria, RemainingTime)
StartInsert(AdID)
1722
1724
SetVideoSource(SourceID)
1728
PlayAd(AdID)
VideoStatus(HMM)
1726
VideoStatus(NodeID, ChannelID, Mode)
1730
1734
AdBreakContinue(ChannelID, LengthEst)
1732
AdPlayComplete(AdID, Status)
1738
AdBreakEnd(ChannelID, TimeEst)
1736
SelectAd(Criteria, RemainingTime)
StartInsert(AdID)
1740
1742
PlayAd(AdID)
1744
AdPlayComplete(AdID, Status)
EndInsert()
1746
1748
SetVideoSource(SourceID)
VideoStatus(Mode)
1750
VideoStatus(NodeID, ChannelID, Mode)
1752

FIG. 17

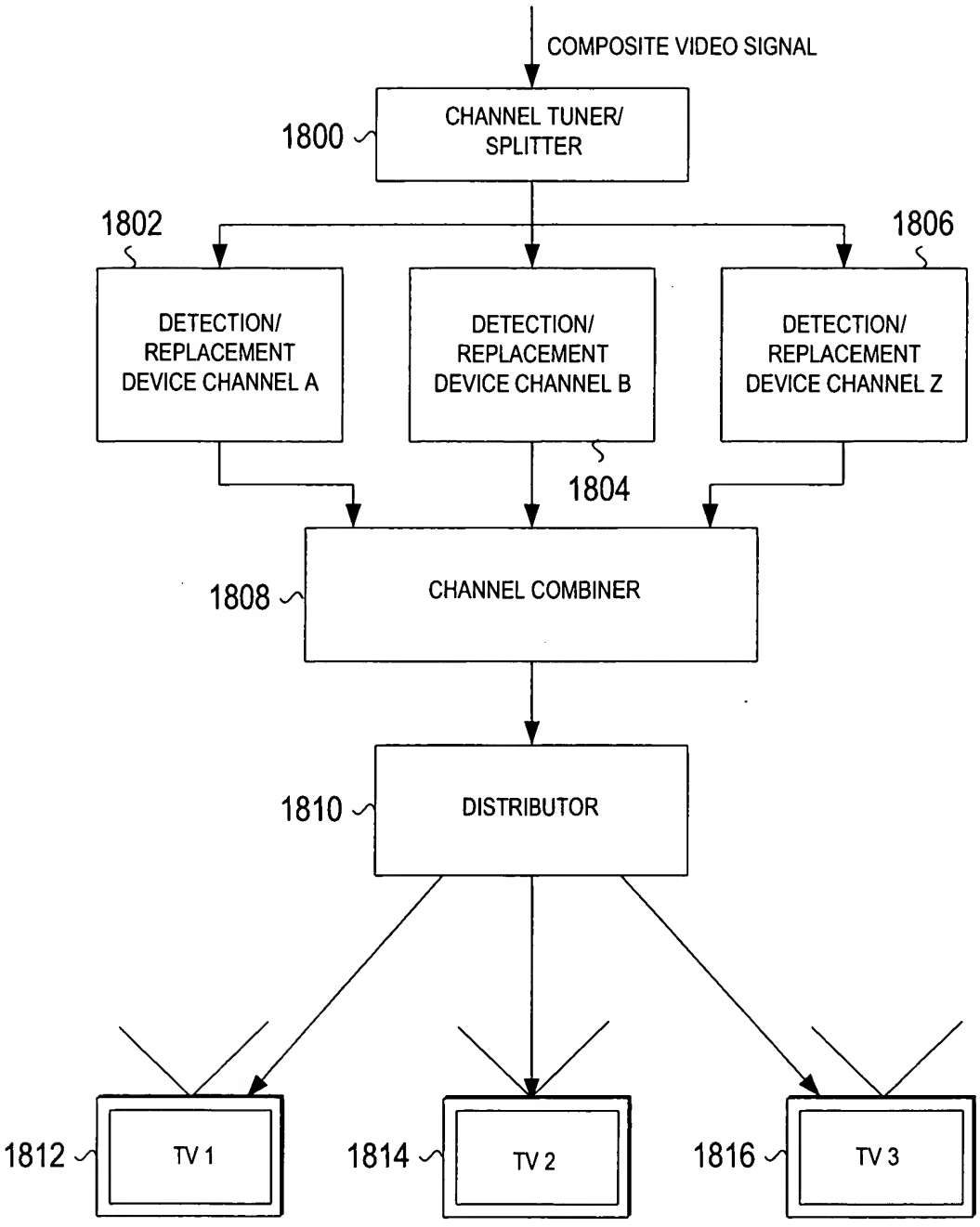
COMPOSITE VIDEO SIGNAL
1800
CHANNEL TUNER/ SPLITTER
1802
1806
DETECTION/ REPLACEMENT DEVICE CHANNEL A
DETECTION/ REPLACEMENT DEVICE CHANNEL B
DETECTION/ REPLACEMENT DEVICE CHANNEL Z
1804
1808
CHANNEL COMBINER
1810
DISTRIBUTOR
1812
TV 1
1814
TV 2
1816
TV 3

FIG. 18

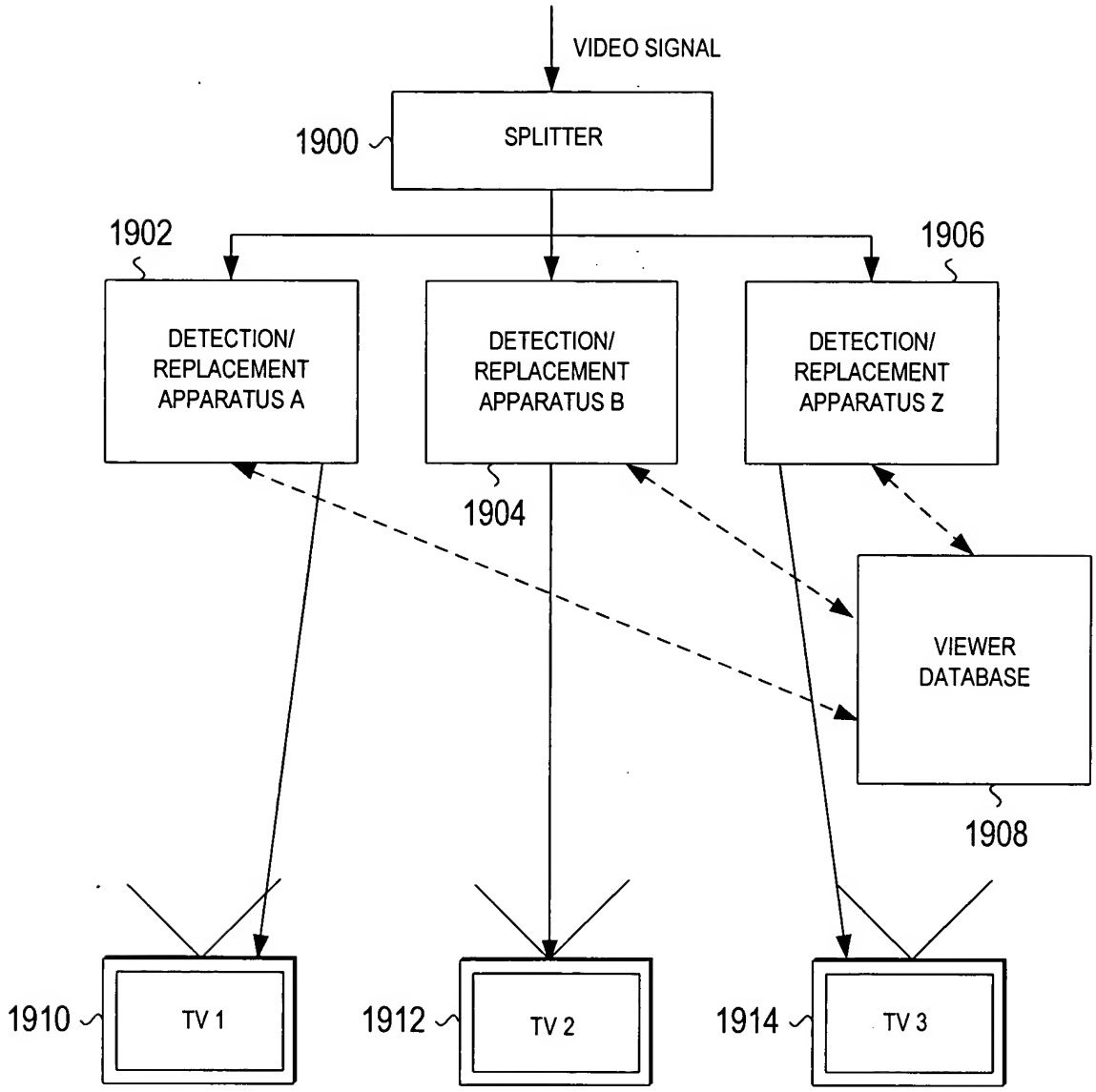
VIDEO SIGNAL
1900
SPLITTER
1902
1906
DETECTION/ REPLACEMENT APPARATUS A
DETECTION/ REPLACEMENT APPARATUS B
DETECTION/ REPLACEMENT APPARATUS Z
1904
VIEWER DATABASE
1908
1910
TV 1
1912
TV 2
1914
TV 3

FIG. 19

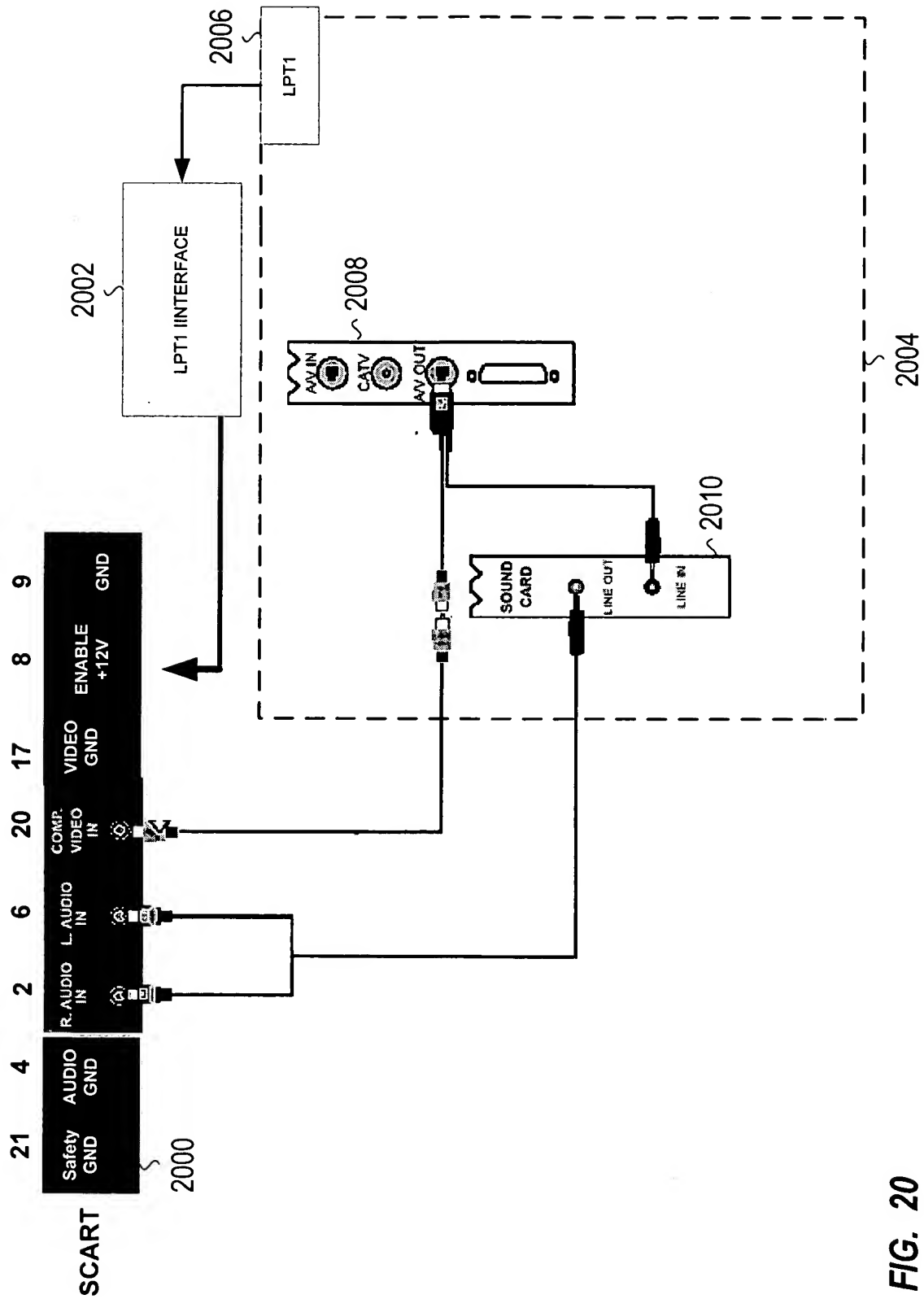
2006
LPT1
2002
LPT1 IINTERFACE
2008
A/V IN
CATV
A/V OUT
2004
2010
SOUND CARD
LINE OUT
LINE IN
SCART
21
Safety GND
4
AUDIO GND
2
R. AUDIO IN
6
L. AUDIO IN
20
COMP. VIDEO IN
17
VIDEO GND
8
ENABLE +12V
9
GND
2000

FIG. 20